

Listing of Claims:

Claims 1-13 (Canceled).

14. (Currently Amended) ~~The A color image forming apparatus of claim 1, comprising:~~

a first image forming device including a first scanning optical device to form a first image and a first developing device to develop the first image into a first color toner image;
and

a second image forming device including a second scanning optical device to form a second image and a second developing device to develop the second image into a second color toner image;

wherein each of the first and second optical devices comprises:

a light source which emits a light beam;
a deflector which deflects the light beam so as to scan an image forming surface in a main scanning direction with the light beam;

a plurality of lenses provided between the deflector and the image forming surface to focus the deflected light on the image forming surface, wherein each of the plurality of lenses has a length along the main scanning direction; and

a lens positioning device to position at least one lens of the plurality of lenses rotatably around an axis parallel to the length of the at least one lens to adjust a characteristic of a scan line image in an adjustment process;

25 wherein a characteristic of a first scan line image and a characteristic of a second scan line image substantially become the same when at least one of the lenses is rotated around the axis parallel to the length of the lens; and

30 wherein the positioning device of each of the first and second optical devices allows the respective at least one rotatable lenses to be rotatable so as to make deviations between the respective line images and the desired line smaller than 200 μm .

15. (Previously Presented) The apparatus of claim 14, wherein the deviations are made smaller than 120 μm .

16. (Currently Amended) The A color image forming apparatus of claim 1, comprising:

5 a first image forming device including a first scanning optical device to form a first image and a first developing device to develop the first image into a first color toner image; and

a second image forming device including a second scanning optical device to form a second image and a second developing device to develop the second image into a second color toner image;

wherein each of the first and second optical devices comprises:

a light source which emits a light beam;

a deflector which deflects the light beam so as to scan

an image forming surface in a main scanning direction with the light beam;

a plurality of lenses provided between the deflector and the image forming surface to focus the deflected light on the image forming surface, wherein each of the plurality of lenses

has a length along the main scanning direction; and

a lens positioning device to position at least one lens of the plurality of lenses rotatably around an axis parallel to the length of the at least one lens to adjust a characteristic of a scan line image in an adjustment process;

wherein a characteristic of a first scan line image and a characteristic of a second scan line image substantially become the same when at least one of the lenses is rotated around the axis parallel to the length of the lens; and

wherein the positioning device of each of the first and second optical device allows the respective at least one

rotatable lenses to be rotatable so as to make the respective line images to become a desired line.

Claims 17-32 (Canceled).

33. (Currently Amended) The A scanning optical system of claim 18, for use in a color image forming apparatus, said system comprising:

5 first and second scanning optical devices to scan in a main scanning direction with a light beam so that each of the devices forms an image on an image forming surface;

wherein each of the first and second scanning optical devices comprises:

a light source which emits a light beam;

10 a deflector which deflects the light beam in the main scanning direction;

a plurality of lenses, provided between the deflector and the image forming surface, which focus the deflected light beam on the image forming surface, wherein each of the lenses has a length along the main scanning direction; and

15 a lens positioning device to position at least one lens of the plurality of lenses rotatably around an axis parallel to the length of the at least one lens to adjust the characteristic of a scan line image in an adjustment process;

20 wherein a characteristic of a first scan line image and a
characteristic of a second scan line image substantially become
the same when the at least one of the lenses is rotated around
the axis parallel to the length of the lens; and

25 wherein the positioning device of each of the first and
second optical devices allows the respective at least one
rotatable lenses to be rotatable so as to make the respective
line images to become a desired line.

34. (Currently Amended) The A scanning optical system of
claim 18, for use in a color image forming apparatus, said system
comprising:

5 first and second scanning optical devices to scan in a main
scanning direction with a light beam so that each of the devices
forms an image on an image forming surface;

wherein each of the first and second scanning optical
devices comprises:

10 a light source which emits a light beam;

a deflector which deflects the light beam in the main
scanning direction;

15 a plurality of lenses, provided between the deflector
and the image forming surface, which focus the deflected light
beam on the image forming surface, wherein each of the lenses has
a length along the main scanning direction; and

a lens positioning device to position at least one lens of the plurality of lenses rotatably around an axis parallel to the length of the at least one lens to adjust the characteristic of a scan line image in an adjustment process;

20 wherein a characteristic of a first scan line image and a characteristic of a second scan line image substantially become the same when the at least one of the lenses is rotated around the axis parallel to the length of the lens; and

25 wherein each of the first and second images comprises a line image and the characteristic of the image comprises a shape of the line image.

Claims 35-49 (Canceled).

50. (Currently Amended) The A color image forming apparatus of claim 35, including a developing device for forming a color toner image, comprising:

5 first and second scanning optical devices to scan in a main scanning direction with a light beam so that each of the devices forms an image on an image forming surface;

wherein each of the first and second scanning optical devices comprises:

a light source which emits a light beam;

10 a deflector which deflects the light beam in the main scanning direction;

a plurality of lenses, provided between the deflector and the image forming surface, which focus the deflected light beam on the image forming surface, wherein each of the lenses has a length along the main scanning direction; and

15 a lens positioning device to position at least one lens of the plurality of lenses rotatably around an axis parallel to the length of the at least one lens to adjust the characteristic of a scan line image in an adjustment process;

20 wherein a characteristic of a first scan line image and a characteristic of a second scan line image substantially become the same when at least one of the lenses is rotated around the axis parallel to the length of the lens; and

25 wherein the positioning device of each of the first and second optical device allows the respective at least one rotatable lenses to be rotatable so as to make the respective line images to become a desired line.

51. (Currently Amended) ~~The~~ A color image forming apparatus of claim 35, including a developing device for forming a color toner image, comprising:

5 first and second scanning optical devices to scan in a main
scanning direction with a light beam so that each of the devices
forms an image on an image forming surface;

wherein each of the first and second scanning optical
devices comprises:

10 a light source which emits a light beam;
a deflector which deflects the light beam in the main
scanning direction;

15 a plurality of lenses, provided between the deflector
and the image forming surface, which focus the deflected light
beam on the image forming surface, wherein each of the lenses has
a length along the main scanning direction; and

a lens positioning device to position at least one lens
of the plurality of lenses rotatably around an axis parallel to
the length of the at least one lens to adjust the characteristic
of a scan line image in an adjustment process;

20 wherein a characteristic of a first scan line image and a
characteristic of a second scan line image substantially become
the same when at least one of the lenses is rotated around the
axis parallel to the length of the lens; and

25 wherein each of the first and second images comprises a line
image and the characteristic of the image comprises a shape of
the line image.

52. (Previously Presented) A color image forming apparatus,
comprising:

5 a first image forming device including a first scanning
optical device to form a first image and a first developing
device to develop the first image into a first color toner image;
and

10 a second image forming device including a second scanning
optical device to form a second image and a second developing
device to develop the second image into a second color toner
image;

wherein each of the first and second optical devices
comprises:

15 a light source which emits a light beam;
a deflector which deflects the light beam so as to scan
an image forming surface in a main scanning direction with the
light beam; and

20 a plurality of lenses provided between the deflector
and the image forming surface to focus the deflected light on the
image forming surface, wherein each of the plurality of lenses
has a length along the main scanning direction;

wherein at least one lens of the plurality of lenses of the
first optical device is rotatable around an axis parallel to the
length of the at least one rotatable lens to adjust a

characteristic of a first scan line image prior to fixing a
25 position of the rotatable lens; and

wherein the characteristic of the first scan line image and
a characteristic of a second scan line image become substantially
the same when at least one of the lenses of the first optical
device is rotated around the axis parallel to the length of the
30 lens.

53. (Previously Presented) The apparatus of claim 52,
wherein at least one lens of the plurality of lenses of the
second optical device is rotatable around an axis parallel to the
length of the at least one lens to adjust the characteristic of
the second scan line image prior to fixing a position of the
rotatable lens of the second optical device.

54. (Previously Presented) The apparatus of claim 52,
further comprising:

third and fourth image forming devices including respective
scanning optical devices and respective developing devices,

5 wherein each of the third and fourth scanning optical
devices also comprises a light source, a deflector and a
plurality of lenses, and

wherein at least one lens of the plurality of lenses of the
second optical device, the third optical device and the fourth

10 optical device are rotatable around an axis parallel to the length of each lens to adjust a characteristic of the second scan line image, a third scan line image, and a fourth scan line image prior to fixing a position of each rotatable lens.

55. (Previously Presented) The apparatus of claim 54, further comprising:

an adjustment device to adjust at least one of the first, second, third and fourth scanning optical devices so that the scanned images formed by the first, second, third and fourth scanning optical devices are superposed on a recording sheet.

56. (Previously Presented) The apparatus of claim 52, wherein the deflector includes a polygon mirror.

57. (Previously Presented) The apparatus of claim 52, wherein one lens of the plurality of lenses comprises an $f\theta$ lens.

58. (Previously Presented) The apparatus of claim 52, wherein one lens of the plurality of lenses comprises a cylindrical lens.

59. (Previously Presented) The apparatus of claim 52,
wherein the plurality of lenses comprises an fθ lens and a
cylindrical lens.

60. (Previously Presented) The apparatus of claim 59,
wherein the cylindrical lens of the first scanning optical device
is rotatable around an axis parallel to the length of the
cylindrical lens so as to scan a straight line on the image
5 forming surface.

61. (Previously Presented) The apparatus of Claim 59,
wherein the fθ lens and the cylindrical lens are rotatable
around an axis parallel to the length of each lens respectively
so that the deflected light scans a straight line on the image
forming surface.

62. (Previously Presented) The apparatus of claim 52,
wherein the rotatable lens is positioned closest to the image
forming surface among the plurality of lenses.

63. (Previously Presented) The apparatus of claim 52,
wherein the characteristic of the first scan line image and the
characteristic of the second scan line image is a straight line.

64. (Previously Presented) The apparatus of claim 52,
further comprising:

an adjustment device to adjust at least one of the first and
second scanning optical devices so that the scanned images formed
5 by the first and second image forming devices are superposed on a
recording sheet.

65. (Previously Presented) The apparatus of claim 52,
wherein the image forming surface comprises a surface of a common
image bearing member.

66. (Previously Presented) The apparatus of claim 52,
wherein the first scanning optical device forms the first image
on a surface of a first image bearing member, and the second
scanning optical device forms the second image on a surface of a
5 second image bearing member.

67. (Previously Presented) The apparatus of claim 52,
wherein a deviation between the first scan line image and a
desired line image is smaller than 200 μm when at least one of
the lenses of the first optical device is rotated around the axis
5 parallel to the length of the lens.

68. (Previously Presented) The apparatus of claim 67,
wherein the deviation is made smaller than 120 μm .

69. (Previously Presented) The apparatus of claim 52,
wherein the first scan line image becomes a desired line image
when at least one of the lenses of the first optical device is
rotated around the axis parallel to the length of the lens.

70. (Previously Presented) The apparatus of claim 52,
wherein each of the first and second images comprises a line
image and the characteristic of the image comprises a shape of
the line image.

71. (Previously Presented) A scanning optical system for
use in a color image forming apparatus comprising:

first and second scanning optical devices to scan in a main
scanning direction with a light beam so that each of the devices
5 forms an image on an image forming surface;

wherein each of the first and second scanning optical
devices comprises:

a light source which emits a light beam;
a deflector which deflects the light beam so as to scan
10 an image forming surface in a main scanning direction; and

a plurality of lenses, provided between the deflector and the image forming surface, which focus the deflected light beam on the image forming surface, wherein each of the plurality of lenses has a length along the main scanning direction;

15 wherein at least one lens of the plurality of lenses of the first optical device is rotatable around an axis parallel to the length of the one lens to adjust a characteristic of a first scan line image prior to fixing a position of the rotatable lens; and
20 wherein the characteristic of the first scan line image and a characteristic of a second scan line image become substantially the same when at least one of the lenses of the first optical device is rotated around the axis parallel to the length of the lens.

72. (Previously Presented) The system of claim 71, wherein at least one lens of the plurality of lenses of the second optical device is rotatable around an axis parallel to the length of the at least one lens to adjust a characteristic of the second scan line image prior to fixing a position of the rotatable lens.

5 73. (Previously Presented) The system of claim 71, further comprising:

third and fourth image forming devices including respective scanning optical devices and respective developing devices,

5 wherein each of the third and fourth scanning optical devices also comprises a light source, a deflector and a plurality of lenses, and

10 wherein at least one lens of the plurality of lenses of the second optical device, the third optical device and the fourth optical device are rotatable around an axis parallel to the length of each lens to adjust a characteristic of the second scan line image, a third scan line image, and a fourth scan line image prior to fixing a position of each rotatable lens.

74. (Previously Presented) The system of claim 73, further comprising:

5 an adjustment device to adjust at least one of the first, second, third and fourth scanning optical devices so that the scanned images formed by the first, second, third and fourth scanning optical devices are superposed on a recording sheet.

75. (Previously Presented) The system of claim 71, wherein the deflector includes a polygon mirror.

76. (Previously Presented) The system of claim 71, wherein one lens of the plurality of lenses comprises an fθ lens.

77. (Previously Presented) The system of claim 71, wherein one lens of the plurality of lenses comprises a cylindrical lens.

78. (Previously Presented) The system of claim 71, wherein the plurality of lenses comprises an $f\theta$ lens and a cylindrical lens.

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79. (Previously Presented) The system of claim 78, wherein the cylindrical lens of the first scanning optical device is rotatable around an axis parallel to the length of the cylindrical lens so as to scan a straight line on the image forming surface.

80. (Previously Presented) The system of Claim 78, wherein the $f\theta$ lens and the cylindrical lens are rotatable around an axis parallel to the length of each lens respectively so that the deflected light scans a straight line on the image forming surface.

81. (Previously Presented) The system of claim 71, wherein the rotatable lens is positioned closest to the image forming surface among the plurality of lenses.

82. (Previously Presented) The system of claim 71, wherein the characteristic of the first scan line image and the characteristic of the second scan line image is a straight line.

83. (Previously Presented) The system of claim 71, further comprising:

an adjustment device to adjust at least one of the first and second scanning optical devices so that the scanned images formed by the first and second image forming devices are superposed on a recording sheet.
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84. (Previously Presented) The system of claim 71, wherein the image forming surface comprises a surface of a common image bearing member.

85. (Previously Presented) The system of claim 71, wherein the first scanning optical device forms the first image on a surface of a first image bearing member, and the second scanning optical device forms the second image on a surface of a second image bearing member.
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86. (Previously Presented) The system of claim 71, wherein a deviation between the first scan line image and a desired line image is smaller than 200 μm when at least one of the lenses of

the first optical device is rotated around the axis parallel to
5 the length of the lens.

87. (Previously Presented) The system of claim 86, wherein
the deviation is made smaller than 120 μm .

88. (Previously Presented) The system of claim 71, wherein
the first scan line image becomes a desired line image when at
least one of the lenses of the first optical device is rotated
around the axis parallel to the length of the lens.

89. (Previously Presented) The system of claim 71, wherein
each of the first and second images comprises a line image and
the characteristic of the image comprises a shape of the line
image.

90. (Previously Presented) A color image forming apparatus
including a developing device for forming a color toner image,
comprising:

first and second scanning optical devices to scan in a main
5 scanning direction with a light beam so that each of the devices
forms an image on an image forming surface,

wherein each of the first and second scanning optical
devices comprises:

a light source which emits a light beam;

10 a deflector which deflects the light beam so as to scan an image forming surface in a main scanning direction; and

a plurality of lenses, provided between the deflector and the image forming surface, which focus the deflected light beam on the image forming surface, wherein each of the plurality 15 of lenses has a length along the main scanning direction;

wherein at least one lens of the plurality of lenses of the first optical device is rotatable around an axis parallel to the length of the one lens to adjust a characteristic of a first scan line image prior to fixing a position of the rotatable lens; and

20 wherein the characteristic of the first scan line image and a characteristic of a second scan line image become substantially the same when at least one of the lenses of the first optical device is rotated around the axis parallel to the length of the lens.

91. (Previously Presented) The apparatus of claim 90, wherein at least one lens of the plurality of lenses of the second optical device is rotatable around an axis parallel to the length of the at least one lens to adjust a characteristic of the 5 second scan line image prior to fixing a position of the rotatable lens.

92. (Previously Presented) The apparatus of claim 90,
further comprising:

third and fourth image forming devices including respective
scanning optical devices and respective developing devices,

5 wherein each of the third and fourth scanning optical
devices also comprises a light source, a deflector and a
plurality of lenses, and

wherein at least one lens of the plurality of lenses of the
second optical device, the third optical device and the fourth
10 optical device are rotatable around an axis parallel to the
length of each lens to adjust a characteristic of the second scan
line image, a third scan line image, and a fourth scan line image
prior to fixing a position of each rotatable lens.

93. (Previously Presented) The apparatus of claim 92,
further comprising:

an adjustment device to adjust at least one of the first,
second, third and fourth scanning optical devices so that the
5 scanned images formed by the first, second, third and fourth
scanning optical devices are superposed on a recording sheet.

94. (Previously Presented) The apparatus of claim 90,
wherein the deflector includes a polygon mirror.

95. (Previously Presented) The apparatus of claim 90,
wherein one lens of the plurality of lenses comprises an f₀ lens.

96. (Previously Presented) The apparatus of claim 90,
wherein one lens of the plurality of lenses comprises a
cylindrical lens.

97. (Previously Presented) The apparatus of claim 90,
wherein the plurality of lenses comprises an f₀ lens and a
cylindrical lens.

98. (Previously Presented) The apparatus of claim 97,
wherein the cylindrical lens of the first scanning optical device
is rotatable around an axis parallel to the length of the
cylindrical lens so as to scan a straight line on the image
5 forming surface.

99. (Previously Presented) The apparatus of Claim 97,
wherein the f₀ lens and the cylindrical lens are rotatable
around an axis parallel to the length of each lens respectively
so that the deflected light scans a straight line on the image
forming surface.

100. (Previously Presented) The apparatus of claim 90, wherein the rotatable lens is positioned closest to the image forming surface among the plurality of lenses.

101. (Previously Presented) The apparatus of claim 90, wherein the characteristic of the first scan line image and the characteristic of the second scan line image is a straight line.

102. (Previously Presented) The apparatus of claim 90, further comprising:

an adjustment device to adjust at least one of the first and second scanning optical devices so that the scanned images formed by the first and second image forming devices are superposed on a recording sheet.

103. (Previously Presented) The apparatus of claim 90, wherein the image forming surface comprises a surface of a common image bearing member.

104. (Previously Presented) The apparatus of claim 90, wherein the first scanning optical device forms the first image on a surface of a first image bearing member, and the second scanning optical device forms the second image on a surface of a second image bearing member.

105. (Previously Presented) The apparatus of claim 90,
wherein a deviation between the first scan line image and a
desired line image is smaller than 200 μm when at least one of
the lenses of the first optical device is rotated around the axis
5 parallel to the length of the lens.

106. (Previously Presented) The apparatus of claim 105,
wherein the deviation is made smaller than 120 μm .

107. (Previously Presented) The apparatus of claim 90,
wherein the first scan line image becomes a desired line image
when at least one of the lenses of the first optical device is
rotated around the axis parallel to the length of the lens.

108. (Previously Presented) The apparatus of claim 90,
wherein each of the first and second images comprises a line
image and the characteristic of the image comprises a shape of
the line image.